Risk Behavior and Perception Among Youths Residing in Urban Public Housing Developments

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Abstract. *The scientific literature and popular media suggest that variations in housing structure and neighborhood influence risk behaviors among youths living in low-income urban communities. To explore the importance of these factors on early sexual intercourse, substance use, drug trafficking, and school truancy, data from a community-based survey, conducted in six public housing developments in a major eastern metropolis, were analyzed. The survey group consisted of 300 youths aged 9 through 15 years. There were minimal differences in three potential mediators of risk behaviors (e.g., perceived social support, parenting style, and perceived risk exposure) and in self-reported adolescent risk behaviors among youths residing in different housing developments and between youths residing in high-rise and in low-rise structures. These findings do not support the hypothesis that within a risk-dense low-income environment, variations in building structure or in neighborhood are associated with differences in adolescent risk behaviors.*

The importance of assessing the local culture and social environment for factors relevant to risk and/or protective behaviors in health and development among adolescents has become fundamental to intervention planning.[1–5] There is general acceptance that major geographic differences (urban versus rural, different metropolitan areas, etc.), substantial socioeconomic gradients, and/or different ethnic groups are likely to be accompanied by significant cultural and environmental factors.[6,7] References from both the popular media and the scientific literature[8,9] indicate that

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even among a relatively homogenous socioeconomic and racial population within a single city, differences in neighborhood may result in markedly different social environment and risk exposure. Likewise, there is a substantial literature suggesting that the physical structure of housing (e.g., high rise versus low rise) may be associated with perceived and actual well-being.[10–12] A growing literature suggests that high-rise living may be associated with an increased perception of social isolation,[13] helplessness (especially among women),[14] and increased exposure to risk behaviors[15] in multiple settings around the world.[16–21] For example, elderly persons living in high-rise developments reported significantly more medical problems, more stress, higher levels of depression, and smaller social support networks.[21,22] Likewise, high-rise tenants were more fearful and perceived the crime problem as greater,[23] had poorer social relationships,[24,25] and experienced a higher level of psychological strain.[14,26] Substantially higher crime, vandalism, theft, and larceny rates have been found in high-rise structures compared to low-rise structures.[27–29] Children in high-rise developments were more likely to develop problem behaviors and to perceive more risk exposure.[30–32]

At the same time, however, there is a substantial literature that has not confirmed these findings.[33–35] For example, several studies have found no association or an inconsistent association between housing structure, problem behaviors and/or psychological disturbance.[36,37] Few studies have examined the influence of building structure on early adolescent risk behaviors.

If there were differences in risk behavior based on housing structure or location, the implications for intervention would be significant. Substantial differences in risk behavior associated with residential structure would support allocation of limited funds to the redesigning and rebuilding of public housing units. Conversely, the absence of such an association might indicate that these funds could be utilized more efficaciously in other support programs. Likewise, marked differences in risk behavior by geographic location would suggest that intervention strategies may have to be substantially varied even within a single inner-city

community. However, if rates of risk behaviors and related factors are relatively homogeneous, strategies developed for a limited number of sites could reasonably be more broadly applied without extensive, or repeated, pretesting. Factors relevant to (e.g., mediators of) risk and protective behavior which might be anticipated to vary by differences in residential structure or location include social support,[8] parenting style,[38] and perceived risk exposure.[2,9,39,40]

The present analyses were undertaken to examine the hypotheses that within a risk-dense environment (e.g., public housing units in a low-income urban area), social support, parental supervision, perceived risk exposure, and self-reported risk behaviors and feelings would: (1) vary according to building structure, and (2) differ among geographic locations.

Method

Survey Sites

A survey of children aged 9 through 15 years was conducted in six public-housing development sites containing approximately 4000 families, including 1600 children within the targeted age group. Virtually all residents in each site lived at or below the poverty line and were African-American. However, there were some potentially important features differentiating the sites. First, two of the sites were "low-rise" units (1 to 3 stories), whereas the units in the remaining four developments were predominantly high rise (up to 18 stories). In the two "low-rise" units, there was an average of 1.1 and 1.6 occupants, but in all four "high-rise" developments the average number of occupants exceeded 2.2, with one development having an average of 2.8 occupants per unit. The estimated percentage of youths aged 9 through 15 among the residents was also different in "low-rise" (approximately 10%) and "high-rise" (approximately 15%) housing. Second, although there is some variation between the developments in this regard, in general each of the six housing developments forms a relatively isolated environment for the children and youths residing there. For example, the majority of children within a development

attend an elementary school specific to that development. Likewise, four of the sites have attached recreational centers that are frequented by children from those developments. Thus, there is reason to hypothesize that risk behaviors ("exposure") or parental style might differ between these microcultures.

Participants and Survey Procedures

The procedures for enrollment and data-gathering were explained in detail elsewhere[41,42] and are briefly summarized here.

A sample of approximately 50 youths from each of the six housing development sites was recruited by paid, adult residents at each site who were identified by the tenant associations as knowledgeable regarding the families. These adults were instructed to recruit approximately equal numbers of boys and girls, and only one child per household unit. Interviews were administered in the housing sites via a "talking computer" that had been programmed to deliver the questions both aurally through earphones and visually on the computer screen. The computer program delivered a personalized version of the interview, taking into account the child's gender and level of risk behavior involvement. The interview was divided into several sections.

Social support. The social network section included an in-depth discussion of the child's friends, including duration of friendships (more than 5 years, 3 to 5 years, 1 to 3 years, less than 1 year). Youths were also asked if they had engaged in any recreational activity with their friends in the previous week (i.e., playing team sports, bowling, going to a youth club or recreation center, going to a church club, going to a skating rink).

Supervision. The parental monitoring section, which was based on a six-item scale developed by Silverberg and Small,[43] assessed youths' perceptions of how closely their parents monitored their activities in six ways: i.e. Do your parents (1) know where you are when you are not at home or in school; (2) expect you to call them if you are going to be home late; (3) want to know who you are going to be with before you go out; (4) ask you where you are going when you go out? Do you talk to your parents about (1) what you

are going to do before you go out with friends; (2) the things you did with your friends?

Perceived risk exposure. Subsequently, youths were asked, in a yes/no format, if in the last 6 months they felt that they had problems in daily life regarding seven areas: school, sex, family, friends, their bodies, pregnancy, and drugs. If so, they were further queried as to whether they had trouble finding someone to help them deal with these problems (yes/no). To assess the influence of peers, youths were questioned regarding their perception of how many (none, some, most) of their friends had engaged in the above-described activities.

Self-reported behavior and feeling. The behavioral section of the interview focused on the child's sexual behavior (i.e., kissed someone on the lips, tongue kissed, and/or had sexual intercourse), substance use (i.e., cigarettes, alcohol, marijuana, other illegal drugs), drug trafficking (i.e., sold drugs, delivered drugs), and school truancy (i.e., suspended from school, stayed home alone, skipped school with friends). Participants were also asked to rate on a five-point scale (very good, good, neither good nor bad, bad, very bad) how they would feel if they were to engage in eight risk activities during the next year (i.e., skip school, smoke marijuana, smoke a cigarette, drink alcohol, use illegal drugs, sell drugs, deliver drugs, have sexual intercourse). Informed consent was obtained from both caretakers and children, and each child received $5.00 for participating. Participants and caretakers were informed that all responses to the survey were strictly confidential. The research protocol and questionnaire received clearance from the local Institutional Research Board.

Data Analyses

Based on the questions in the survey, composite scores were created for 11 subscales measuring risk behaviors and social environmental factors. These subscales include the duration of friendships; engagement in recreation activities; parental monitoring; problems perceived in daily life; perceived help resources; sexual experience; school truancy; substance use; involvement in drug

TABLE I
SUMMARY OF THE SUBSCALES CREATED TO MEASURE SOCIAL ENVIRONMENT, PERCEPTION AND RISK BEHAVIORS

Subscale (no. of items)	Cronbach's α	Sample Question (response choices)
Social Support		
Friendship Duration (4)	.55	How long have you been friends with your best friends? (1 = less than a year, 2 = 1 to 3 years, 3 = 3 to 5 years, 4 = more than 5 years)
Recreation Activities (5)	.52	Did you go to a youth club or recreation center last week? (1 = yes, 0 = no)
Supervision		
Parental Monitoring (6)	.72	Do your parents know where you are when you are not at home or in school? (0 = never, 1 = sometimes, 2 = always)
Perceived Risk Exposure		
Problems Perceived (7)	.59	Have you ever had a school problem that you wanted to talk to someone? (1 = yes, 0 = no)
Help Resources (7)	.52	Have you ever had trouble finding someone to talk about school problems? (0 = yes, 1 = no)
Peer Norms (8)	.78	How many of your friends have smoked marijuana? (1 = none of them, 2 = some of them, 3 = most of them)
Self-reported Behavior and Feeling		
Sexual Experience (3)	.80	Kissed someone on the lips; tongue kissed, had sex. (1 = yes, 0 = no)
School Truancy (3)	.61	Did you miss any days because you were suspended from school? (1 = yes, 0 = no)
Substance Use (4)	.44	During this school year, did you ever smoke marijuana? (1 = yes, 0 = no)
Drug Trafficking (2)	.56	Did you ever sell drugs? (1 = yes, 0 = no)
Personal Feelings (8)	.80	How would you feel about smoking marijuana? (1 = very good, 2 = good, 3 = neither good nor bad, 4 = bad, 5 = very bad)

trafficking; personal feelings for engaging in risk activities; and perception of peer involvements in these activities. A summary description, including reliability estimations (Cronbach's alpha) of these subscales, is presented in Table I. A composite sum score

was obtained for each of the subscales except that for friendship duration. The latter was measured by the maximum value of the responses to four related questions (i.e., length of friendship with best friend and length of longest friendship for same-sex and opposite-sex friends separately).

Four independent variables were created and used in the analyses. Two of the independent variables, which assessed geographic location and physical structure, were of primary interest: housing development site (coded 1 to 6) and rise (low rise versus high rise). To assess our supposition that the variables selected for inclusion in the subscales are in fact associated with differences in risk behaviors, two additional independent variables were created: one based on sexual intercourse, the other based on "other risk behaviors." Youths who reported ever having had sexual intercourse were classified as "active;" all others were classified as "nonactive." For the "other risk behaviors," youths having one or more risk activities described in the three subscales relevant to risk behaviors (i.e., truant from school, substance use, drug trafficking) were designated "risk;" the remaining were designated "no risk." The purpose of using these two "risk-related" independent variables was to assess the association of other factors measured in subscales with actual risk behaviors. That is, differences in the factors based on "rise" or geography would be of particular interest if they were also empirically associated with differences in risk behaviors.

Multivariate analysis of variance, correcting for age, was performed. For the analyses with two geographic independent variables, all 11 composite scores were used in the multivariate analysis as dependent variables. Only 10 composite scores were used in the analysis with sexual intercourse, because the independent variable was confounded by the subscale of sexual experience. Likewise, for the "other risk behavior" independent variable, the total number of dependent variables involved in the analysis was 8 because the independent variable was confounded by three subscales (truant from school, substance use, and drug trafficking).

All analyses were performed using SPSS v4.0. Both multivariate

and univariate tests of significance were obtained from the analysis to assess the group differences from a multidimensional perspective as well as individual dimensions. Pillai's F was used as the test statistic for evaluating multivariate differences because the test retains statistical power when violations of homogeneity of matrices and distributional normality are present.[44] The conventional F test was used for univariate testing. The test of least-significant difference was selected for follow-up multiple comparisons in the one-way procedure.

Results

Demographic Characteristics

As depicted in Table II, 300 youths (140 boys) from six housing development sites completed the survey. They were relatively equally distributed among the housing developments. The average age for the sample was 11.6 years and the median level of schooling was sixth grade. Approximately 39% of the youths reported having had sexual intercourse, and 34% of the youths reported having engaged in two or more of the "other risk activities." (More-detailed descriptions of risk behaviors and risk perceptions have been reported elsewhere.[41]) About one-quarter (24%) of the youths had known their best friends for more than 3 years, whereas one-half (56%) had known them for less than a year. Ninety-three percent of the youths had engaged in one or more recreational activities, the most common of which were playing a team sport (64%) and going to a youth club or recreation center (65%).

There were age differences among respondents from the six housing developments ($P = .0005$) as well as by low/high rise ($P = .030$). Likewise, youths who were sexually active or "high risk" in terms of substance use, drug trafficking, and school truancy were older ($P = .000$ and .002, respectively). There was no significant difference in gender by site ($P = .409$), rise ($P = .347$), and "other risk" ($P = .108$). More males reported having sexual intercourse than females ($P = .000$). The gender difference in

TABLE II
DEMOGRAPHIC CHARACTERISTICS AND MEANS OF SUBSCALE SCORES BY HOUSING SITE*

		Housing Site						
	Overall	1	2	3	4	5	6	*F*
Demographic Characteristics								
Participants (N)	300	48	47	44	51	46	64	–†
Percent	100%	16%	16%	15%	17%	15%	21%	–
Mean Age (Years)	11.6	11.0	12.1	12.2	11.8	11.7	10.9	4.58‡
Males (N)	140	30	25	20	20	22	23	–
Percent	47%	63%	53%	45%	39%	48%	36%	–
Median Grade	6	5	6	6	6	6	5	–
Social Support								
Friendship Duration	3.0	2.9	3.3	2.7	3.2	2.9	2.9	1.52
Recreation Activities	2.5	2.5	2.4	2.8	2.5	2.6	2.3	<1
Supervision								
Parental Monitoring	8.9	8.8	8.9	8.5	8.7	9.3	9.1	<1
Perceived Risk Exposure								
Problems Perceived	2.7	3.0	2.6	2.6	2.0	3.4	2.8	3.32§
Help Resources	1.6	1.7	1.4	1.4	1.4	2.0	1.6	1.79
Peer Norms	11.0	10.7	11.6	11.8	11.2	11.0	10.2	<1
Self-reported Behavior and Feeling								
Sexual Experience	1.4	1.4	1.7	1.6	1.4	1.5	.9	<1
School Truancy	.4	.5	.2	.4	.6	.4	.3	1.61
Substance Use	.2	.2	.2	.2	.1	.3	.2	<1
Drug Trafficking	.1	.1	.1	.2	.1	.1	.1	<1
Personal Feelings	35.9	36.1	36.1	34.4	35.7	35.5	37.0	1.42

* All subscale scores in this table are summations of the items in the subscales except "Friendship Duration" which is the maximum value among the items.
† – indicates that statistical tests were not applicable.
‡ $P < .001$.
§ $P < .01$.

sexual intercourse remained significant even after correcting for age ($P = .000$).

The means of subscale scores and the results of univariate tests of significance by housing site, rise, sexual experience, and other risk activities are presented in Tables II and III.

Housing Site

The multivariate test of site effect was nonsignificant (Pillai's $F = 1.02$, $P = .429$). There was no significant difference among the six housing sites in the social support, supervision, perceived risk environment ("exposure"), and self-reported risk behaviors and feelings, with the exception of "problems perceived"

TABLE III
DEMOGRAPHIC CHARACTERISTICS AND MEANS OF SUBSCALE SCORES BY RISE, SEXUAL EXPERIENCE, AND RISK BEHAVIORS*

	Rise			Sex Experience			Risk Behaviors		
	Low	High	*F*	Nonactive	Active	*F*	Nonrisk	Risk	*F*
Demographic Characteristics									
Participants (N)	93	207	–†	183	117	–	187	113	–
Percent	31%	69%	–	61%	39%	–	62%	38%	–
Mean Age (years)	11.9	11.4	4.73‡	10.8	12.7	93.08§	11.3	12.0	10.63‖
Males (N)	47	93	–	62	78	–	86	54	–
Percent	51%	45%	–	34%	67%	–	46%	48%	–
Median Grade	6	5	–	5	7	–	6	6	–
Social Support									
Friendship Duration	3.1	2.9	<1	2.8	3.2	1.16	3.0	3.0	<1
Recreation Activities	2.5	2.5	<1	2.3	2.8	2.94	2.4	2.7	1.02
Supervision									
Parental Monitoring	9.1	8.8	<1	9.4	8.2	9.12‖	9.2	8.3	8.37‖
Perceived Risk Exposure									
Problems Perceived	3.0	2.6	1.64	2.7	2.7	1.94	2.6	3.0	7.03‡
Help Resources	1.7	1.5	<1	1.6	1.5	<1	1.6	1.6	<1
Peer Norms	11.3	10.9	<1	10.3	12.2	5.64‡	10.4	12.1	15.51§
Self-reported Behavior and Feeling									
Sexual Experience	1.6	1.3	<1	.6	2.7	–	1.1	1.9	16.31§
School Truancy	.3	.4	2.23	.3	.6	5.62‡	.0	1.0	–
Substance Use	.3	.2	<1	.1	.4	9.44‖	.0	.5	–
Drug Trafficking	.1	.1	<1	.0	.2	14.27§	.0	.3	–
Personal Feelings	35.8	35.9	<1	37.3	33.6	26.99§	36.7	34.5	9.82‖

* All subscale scores in this table are summations of the items in the subscales except "Friendship Duration" which is the maximum value among the items.
† – indicates that statistical tests were not applicable.
‡ $P < .05$.
§ $P < .001$.
‖ $P < .01$.

($P = .006$). Follow-up multiple comparisons analysis, correcting for age, revealed that youths in housing development site 5 (low rise) perceived more problems than did youths in three of the remaining five sites. The youths in site 4 (high rise) perceived fewer problems than did youths at any other site.

Rise (High versus Low)

The multivariate test of difference between the two low-rise units and four high-rise units was statistically nonsignificant

(Pillai's $F < 1$, $P = .860$). The low-rise and high-rise developments did not differ significantly on any of the 11 subscales in the four areas.

Sexual Experience

The multivariate test was significant between the active and nonactive groups (Pillai's $F = 4.48$, $P = .000$); 6 of the 10 univariate tests were significant. Youths' sexual experience was inversely related to parental monitoring ($P = .003$) and positively related to the perceived social environment (friends' involvement in risk activities, $P = .018$). The sexually active group showed more school-truant behaviors ($P = .019$), more substance use ($P = .002$), more involvement in drug trafficking activities ($P = .000$), and more positive personal feelings about engaging in those risk activities ($P = .000$).

Other Risk Activities

Multivariate analysis by involvement in "other risk activities" was highly significant (Pillai's $F = 4.85$, $P = .000$); five of the eight univariate tests were significant. Similarly to the sexual experience, youths' involvement in school truancy, substance use, and drug trafficking was inversely associated with parental monitoring ($P = .003$) and positively associated with the perceived risk exposure (peer involvement in risk activities, $P = .000$; problems in their daily life, $P = .009$). The high-risk group reported more sexual experiences ($P = .000$) and better feelings about engaging in risk activities ($P = .002$).

Discussion

Factors influencing risk behaviors among youths living in low-income communities are of considerable importance to public health. This study was undertaken to explore the hypothesis that within a risk-dense environment there would be substantial differences in risk behaviors, perceptions, and antecedents based on structural features and local variations associated with the microculture of different neighborhoods. Despite substantial structural

differences (high rise versus low rise) and evidence of differences in physical and social isolation between the sites which might have promoted different microcultures among the six developments, there were minimal variations in potential mediators of risk/protective behaviors or in self-reported risk behaviors. The data indicate that, at least in this city, variations in location and structure are not associated with marked differences in risk behaviors or empirically correlated antecedents/deterrents. However, differences in sexual experience and other risk behaviors were related to the differences in the three postdated mediators of risk behaviors. Thus the data, reaffirming previous studies, indicate that risk behaviors are associated with differences in parental monitoring,[38] social support,[45] and perceived risk exposure.[42,46]

Potential Limitations of the Study

There are several potential limitations to this study. First, the applicability of these findings to other cities is uncertain. Cities in which there is significant variation in race or ethnic background by housing site may well demonstrate more significant differences in risk experiences or antecedents. Likewise, the geographic distance separating the six sites is less than 5 miles. In cities with greater distance between the low-income communities, differences may be more marked.

Second, it is possible that other risk antecedents or deterrents that were not assessed would differ by one or more of the "geographic factors." For example, we did not examine rates of homicide or other violent crimes, although as noted earlier, other studies have found an association between "rise" and crime rates.[29] However, it should be noted that the factors examined in this study were chosen on the basis of their important associations with risk behaviors, and that the risk behaviors were selected based on their epidemiologic importance within the targeted age group (i.e., they are highly prevalent and associated with adverse health outcomes).

Implications of the Findings

The findings of this study have some important implications for community-based research and prevention efforts. First, although there may be compelling lifestyle reasons for architectural changes in public housing, construction of alternative (non-high-rise) structures for public housing should not result in a sense of complacency regarding environmental risk exposure. Independent of housing structure, the need for additional recreational outlets and social support systems will remain. Previous research indicates that if youths have more recreational outlets they may be less likely to engage in deviant behavior.[45] Our data indicate that most youths are utilizing some of the recreational outlets. Funds utilized to effect changes in residence structure should not be channeled away from these support services based on the misapprehension that the need will be lessened by virtue of alternative housing style. Second, pilot studies conducted in demographically representative sites may provide important information about similarities across neighborhoods, obviating a need for duplicate studies prior to widescale implementation of an intervention. Equally important, the recognition of these similarities can be a base upon which both quantitative and qualitative differences between neighborhoods can be described and analyzed.

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